

1803-1

DRYING MOULDS

FIRING CUPOLAS

HEATING LADLES

EXPANDING
WHEEL DISCS

PATCHING CORES

HEATING PIPES
FOR BENDING

SETTING UP CORNER
ON BOILER
RIVET HEATING

MELTING BABBITT
OUT OF BEARINGS

PREHEATING FOR WELDING

STEEL CAR REPAIRS

**HAUCK
BURNERS**
for
FOUNDRIES
BOILER
MACHINE
and
REPAIR
SHOPS

FEB 1925
Bulletin No 112

HAUCK MANUFACTURING CO.

126-134 TENTH ST.

BROOKLYN, N. Y.



TYPES OF HAUCK BURNERS AND THEIR PURPOSES

Hauck Patent Oil Burners are the result of 20 years constant developing and they have become standard equipment in foundries, boiler, machine and repair shops. Reliable and effective, they reduce time and labor costs. Possess practical features of construction not found in any other burner, torch or furnace. Used with excellent results in:

Foundries

- Firing Cupolas**—No. 4 Compressed Air type burner, page 6. No. 8 Hand Pump type, page 5.
- Drying Moulds**—No. 4 or 5 Compressed Air type, page 6; or No. 7 Hand Pump outfit, page 5; or Suction Torch, page 3.
- Heating and Drying Ladles**—Ladle Heater, page 9.
- Patching Cores**—Hand Torches, page 3.
- Burners for Core Ovens, Annealing Furnaces, etc.**—Furnace Burners, pages 10 and 11.
- Melting Brass**—Crucible Melting Furnace, page 8.

Boiler Shops

- Laying Up Corners**—Laying up seams around mud rings, on dome flanges; laying up laps—No. 2 Compressed Air outfit, page 6; No. 9 Hand Pump outfit, page 5; Double Burner outfit, page 7.
- Shaping Throat Sheet Work**—Straightening plates, mud burns, distorted rings—No. 2 or 4 Compressed Air outfit, page 6; No. 8 or 9 Hand Pump type, page 5.
- Flanging, Dishing, Setting Up Bags**—No. 2 or 4 Compressed Air outfit, page 6; No. 8 or 9 Hand Pump type, page 5.
- Heating Rivets**—Rivet Forges, page 14.
- Bending Pipe**—No. 2 Compressed Air outfit, page 6. No. 9 Hand Pump type, page 5.
- Furnace Burners**—For annealing, forging, bolt heating furnaces, pages 10 and 11.

Machine and Repair Shops

- Preheating for Welding**—Portable Oil Burners, pages 5, 6 and 7.
- Brazing**—Hand Torches, page 3; Portable Burners, pages 4, 5, 6 and 7.
- Expanding to Make Shrink Fits**—Straightening, No. 2 or 4 Compressed Air Burners, page 6; No. 7 or 8 Hand Pump Oil Burner, page 5.
- Melting Babbitt out of Bearings**—Portable Oil Burners, pages 5 and 6.
- Melting Lead, Babbitt and Other Soft Metals**—No. 108 Hauck Furnace, page 13; furnaces, page 12.
- Tool Dressing, Tempering**—Hauck Heating Furnace, page 13.
- Heating Soldering Irons**—Hauck Furnaces, page 12 and page 13, cut 901.
- Plumbers' Furnaces**—Page 12.

Miscellaneous

- Heating Liquids, Tar and Asphalt Kettles**—Hauck Circular Flame Burner, page 4.
- Auto, Truck, Garage and Wagon Repairs**—Hand Torches, page 3; Portable Oil Burners, pages 4, 5, 6 and 7.
- Blacksmithing, Annealing, Case Hardening**—Furnace Burners, pages 10 and 11.



HAUCK COMPRESSED AIR SUCTION TORCH



For skin drying molds, brazing, preheating and other heating operations.

Lights instantly as soon as a valve is opened—no preheating. Burns fuel or kerosene oil.

Operates with compressed air at any pressure.

Absolutely safe—no pressure in tank at any time as oil is syphoned to burner.

Produces an intense, powerful, clean flame, which can be regulated as desired.

Does not carbonize. WILL HEAT A 4-INCH SHAFT IN FIVE MINUTES.

No.	Capacity of Tank	Hose	Price
342	½ gal.	6 ft.	\$17.50
343	1 gal.	6 ft.	\$22.50
344	1½ gal.	6 ft.	\$27.50

HAUCK WELDED STEEL KEROSENE TORCHES



Vaporizes any grade of kerosene or coal oil, produces an intense reddish blue flame, which is steady, clean, and without smoke or soot.

Construction

Tank

Of Steel, all seams and fittings welded or brazed.

Pump

Quick acting type of heavy brass, 1-inch diameter, is powerful and of greater capacity than used in any other torch on the market.

Burner

Constructed of special heat resisting metal. Solid nozzle casting. Straight line oil passageways—no coils. Simple in operation and easy to clean. (Remove only one plug.)

Nos. 14, 15 and 16 Torches are equipped with automatic check to prevent back pressure getting into tank, which remains cool during operation. Carbonization is reduced to a minimum. No. 15 and 16 sizes are supplied with pressure gauges.

The flame of No. 14 Torch will melt a piece of copper ½ inch by ¼ inch in 3 minutes; ½ inch brass rod in 2 minutes. It will heat a 2 inch shaft red hot in 5 minutes.

No	Capacity	Oil Consumption	Length Full Flame	Price Complete
10	1 qt.	1 qt.	8"	\$10.00
14	½ gal.	2 qts.	13"	\$16.00
15	1 gal.	2½ qts.	15"	\$20.00
16	1½ gal.	3 qts.	18"	\$25.00



HAUCK PORTABLE KEROSENE BURNER

Are used daily for brazing, preheating in connection with welding, expanding, tempering, hardening, making shrink fits, and other machine and repair shop work.

The burners are the same as those

furnished on the hand kerosene torches, but equipped with long handles and valves with hose connections.

Light in weight, are easy to handle. Operator does not easily tire, as he handles only the burner.

Flame may be directed from any angle and is particularly adapted for closely confined work. The oil tanks have a larger capacity than those of the Hand Torches, therefore, require less filling.

The tank, gauge, pump, hose and fittings of these outfits are similar to the "one-man" outfit described on page 5

Burners are interchangeable; furnished separately without tank. May be used on other makes of tanks, as all fittings have standard threads.



No.	Capacity of Tank	Oil Consumption per Hour	Length Full Flame	Length of Hose	Price Complete One Burner	Price Complete Two Burners
140	1½ Gal.	2 Quarts	13 In.	6 Ft.	\$ 30.-	\$ 45.-
150	3 Gal.	2½ Quarts	15 In.	6 Ft.	\$ 40.-	\$ 60.-
160	5 Gal.	3 Quarts	18 In.	6 Ft.	\$ 45.-	\$ 65.-

Additional lengths of hose can be furnished if ordered

HAUCK CIRCULAR FLAME BURNER

Burns Kerosene—Replaces coal, coke, gas and wood fires. No compressed air required. Operates with Hand Pump in the tank. Operates several hours with one pumping.

Burner generates a powerful reddish-blue circular flame. Quick, reliable, economical.

Construction of the tank, hose and pump is similar to those of the Hand Pump Type described on page 5.

Furnished with adjustable stand provided with set screw for attaching burners.

Chiefly recommended for heating tar, mastic and asphalt kettles, heating varnish and other liquids; for japanning and enameling ovens, bake ovens, core ovens, melting furnaces; steam, hot water and

hot air furnaces; drying sand and gravel, walls and floors preparatory to waterproofing, etc.



No.	Capacity of tank	Length of oil hose	Oil Consumption per hour	Shipping Weight	Price Complete
11D	3 gal.	6 ft.	½ gal.	40 lbs.	\$ 45.-
12D	5 gal.	6 ft.	1½ gal.	50 lbs.	\$ 50.-
8D	12 gal.	12 ft.	2½ gal.	95 lbs.	\$ 70.-
9D	15 gal.	12 ft.	3 gal.	110 lbs.	\$ 75.-

Swing-joints with pipe connections furnished where no hose is required



HAUCK HAND PUMP TYPE BURNER

Burns Kerosene (Coal Oil)—No Compressed Air Required

This burner is of the vaporizing type, which must be preheated before starting. Burner is supplied with a heating pan. Starts within three minutes. Recommended where compressed air is not available. Is especially suitable for yard and shop work.

Flame is intense and is easily regulated as desired. Before operating, it is necessary to pump up from 30 to 60 pounds pressure into tank for forcing the oil to the burner; the burner does not use air from tank. Operates two to three hours with one pumping.

The burner is so constructed to minimize the carbonization, all passageways being readily accessible and easily cleaned. Produces an intense, reddish blue flame, which is steady, clean and without smoke or soot.

Most successful pump type burner on the market. Used daily for years without repairs.

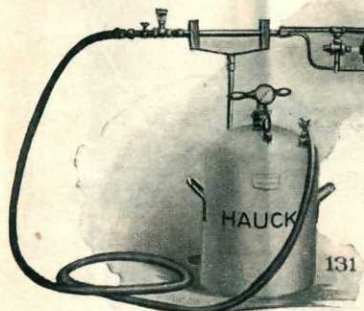


Fig. 131—No. 8 Outfit on Stand

Tank

Tank is of steel, with bottom interlocked and brazed; tinned inside and out. Fittings and valves of best composition metal.

Construction

Pump

Quick acting, long stroke, with automatic spring check valve, heavy brass, 2" diameter, built inside of tank.

Burner

Burner nozzle is of special heat resisting metal; passageways are provided with screw plugs for easy cleaning.

Hose

Hauck special oil-resisting, interwoven, with brass fittings.

Stands

As shown holding above burner are extra and furnished only when ordered.



No. "7A" Hauck One-Man Outfit

No.	Capacity of Tank Gal	Length of Hose Ft	Oil Consumed per Hour Gal	Length Full Flame In	Shipping Weight Lbs	Price Complete without Stand
11	3	6	$\frac{1}{2}$	18	50	\$4.50
7a	5	6	1	20	60	5.00
7	10	12	$1\frac{1}{2}$	22	80	7.00
8	12	12	$2\frac{1}{2}$	28	95	8.00
9	15	12	3	34	110	9.50



HAUCK COMPRESSED AIR TYPE BURNER

Lights Instantly, Without Preheating

Burns the cheapest grade of crude, fuel, kerosene oil or distillate, with compressed air under any pressure varying from 20 to 100 pounds.

Built for everyday hard service, these Burners are practically indestructible.

They are recognized for their reliability. Hauck Burners perfectly atomize the oil developing full heating value of fuel utilized, without loss of heat by radiation through lengthy or double nozzle construction.

Burner is very light in weight, yet strongly built and easy to handle which make it the most popular burner among users. Flame is steady and easily regulated to any size.

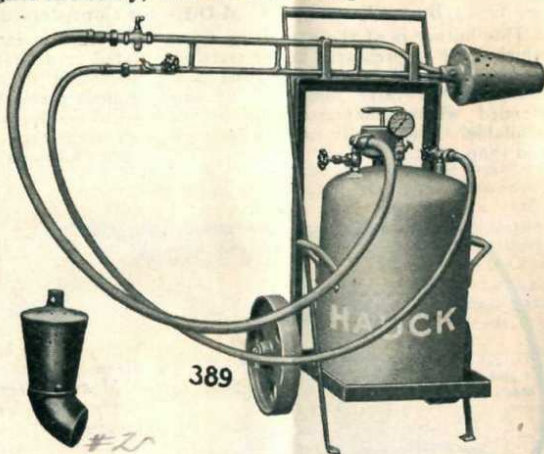


Fig. 389—Compressed Air Outfit on Truck with Extra Elbow Nozzle \$110.-

Construction

Tank

Seamless steel bottom inserted, lapped, interlocked and brazed, tinned inside and out; with two handles.

Fittings

and valves are made of best composition. Pressure gauge registers 150 lbs.

Hose

12 ft. high pressure air hose—12 ft. interwoven and oil resisting hose, each length with brass union connections.

Burner

Latest improved type, made of steel. joints welded or brazed, equipped with oil needle valve, strainer and air regulating valve.

Truck

Of steel, strongly braced with handle and burner support, mounted on 18" wheels.



Fig. 201—Compressed Air One Man Outfit

No.	Capacity of Tank Gals.	One Length Oil & Air Hose, Ft.	Oil Consumed per Hour Gals.	Air Consumed Cubic Ft. Free Air per Minute	Shipping Weight Lbs.	Weight Burner Lbs.	Length Normal Flame Ins.	Price Complete without Truck
5A	5	12 each	1	5	55	8	18	\$60.-
5	10	12 "	2	8	75	8	22	75.-
4	12	12 "	3	12	85	13	28	95.-
2	15	12 "	4	15	100	16	30	105.-
1	16	12 "	5	20	110	19	48	120.-



HAUCK COMBINATION OUTFIT Compressed Air and Hand Pump Type

Burns kerosene or fuel oil—used with or without compressed air. Ideal outfit for inside and outside work. Consists of a 12-gal. seamless combination hand pump tank, one 12-ft. length of high pressure air hose, one 12 ft. length special oil resisting hose, Hauck No. 4 Compressed Air Burner, Hauck No. 8 Hand Pump Burner.

Any combination of burners, described on pages 5 and 6 can be furnished.

Price \$ 1.75



HAUCK DOUBLE BURNER HAND PUMP TYPE OUTFIT Burns kerosene, (coal oil) or distillate

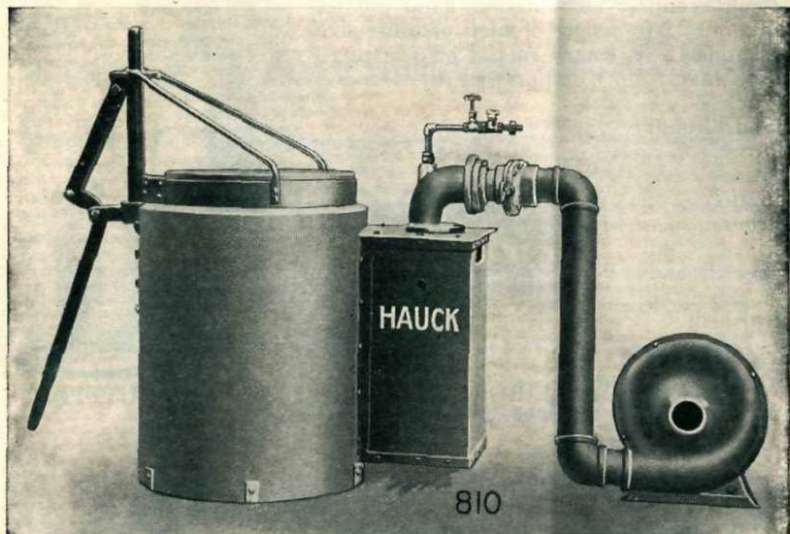
Outfit illustrated is the number 8 described on page 5. It is equipped, however, with an additional burner and hose No. 7 size. These double burner outfits can be supplied with any size burners desired.



No.	Capacity of Tank Gals	Length of Hose Each Burner Ft	Oil Consumed per Hour Each Burner	Length Flame Inches	Shipping Weight	Price Complete without Stands
7 D.B.	10	12	1½ gal.	22	90	\$ 100.-
8 D.B.	12	12	2½ "	28	95	115.-
9 B.D.	15	12	3 "	30	120	130.-
7 & 8	12	12	1½ & 2"	22 & 28	100	110.-



HAUCK CRUCIBLE MELTING FURNACE with Fan Blast Burner



Burner attached to this furnace operates with $1\frac{1}{2}$ or more ounces fan blast, and burns any grade of fuel, crude or kerosene oil. The oil can be fed to the burner by gravity or pressure.

This type of furnace is very satisfactory and constructed principally for melting copper, brass, bronze, nickel and aluminum. Also well adapted for making test melts of iron and steel.

Made to fit any size crucible.

Furnace is supplied with or without blower, and electric motor having switch box for direct or indirect current. Motor is provided with suitable socket for making connection with lighting system.

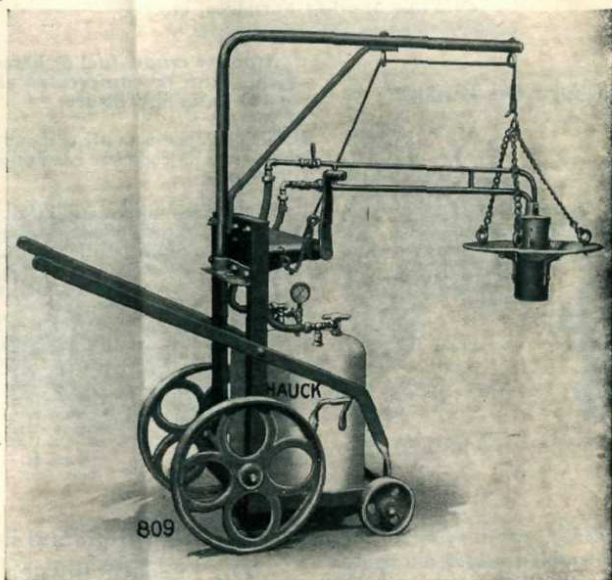
Price of furnace complete with blower and motor, \$....

Price of furnace only, \$....

Where compressed air is available, this furnace is equipped with the Hauck High Pressure or Combination type of furnace burners described on page 10.



LADLE HEATER WITH HAUCK BURNER ATTACHED



For heating all sizes of ladles, particularly Bull and Crane Ladles, in Iron and Steel Foundries.

Burns crude, fuel or kerosene oil with compressed air at any pressure from 15 to 100 lbs.

The equipment is supplied with a 20 gallon oil tank, a compressed air type burner with long handle which is connected to tank by oil and air hose and which has a deflecting plate. Mounted on truck with 18" wheels the entire outfit is easily portable.

The deflecting plate is suspended by steel cable and can be lowered or raised as desired.

Flame of the burner is directed down towards the bottom of the ladle but spreads evenly, quickly heating the entire lining to the required temperature.

Fig. 809—Price complete \$150.-

Burners only with deflecting plate are furnished separately.

cd



HAUCK PATENT FURNACE BURNERS

For Core Ovens, Annealing and Preheating Ovens,
Crucible Melting Furnaces, etc.

High Pressure Oil Burner



Atomize crude, fuel or kerosene oil with steam or compressed air at 20 to 100 pounds pressure.

Flame lights instantly without preheating, generates complete combustion within the burner.

Produces clean, powerful heat, without spitting or wasting of oil. Instant regulation, uniform distribution. No smoke, soot or gases. Burner is mounted on flange with proper space allowance for natural suction draft.

No.	Oil Consumption per Hour	Air Consumption (Free Air) or Steam per Minute	Price
1F	10-25 gal.	20 cu. ft.	\$ 50
2F	6-10 gal.	15 cu. ft.	\$ 40
4F	3-6 gal.	12 cu. ft.	\$ 30
5F	1-3 gal.	8 cu. ft.	\$ 20

This burner is same type as No. 252, except that fan blast is used to complete combustion. Burner is simple in design, is especially effective for large forging and annealing furnaces, where an immense volume of heat is required.

Combustion is obtained within the burner, producing economical and efficient heat.

This burner can also be furnished for using natural gas, which makes this a most practical burner. The oil can be shut off and Natural Gas turned on without making any changes.

Price 2½" Blast Gate \$ 45

Price 3" Blast Gate \$ 50

Price additional for Natural Gas

Attachment \$

When ordering for gas state size of gas pipe.

Combination High and Low Oil Furnace Burner





HAUCK HIGH PRESSURE BURNER With Combustion Chamber

Atomizing type, operates with 15 to 100 pounds of air or steam pressure. Burns any grade of fuel, crude or kerosene oil, fed either by gravity or pressure. Burner is equipped with a correctly

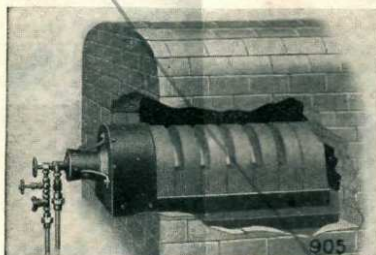
designed combustion chamber which can be placed tight inside of the fire-box or through a special opening cut in the furnace. Suitable for any type of furnace. Better results are secured than by attaching a burner only without combustion chamber to furnace.

Absolutely no guess work how to equip the furnace with this type of burner. The combustion box is placed inside with burner flush outside—then instantly started.

Recommended for core ovens, enameling furnaces, etc., hot water boilers, for heating liquids, tar, asphalt and other material in kettles.

Price of Burner with combustion chamber \$.....

Price without combustion chamber \$.....



HAUCK LOW PRESSURE FURNACE BURNER

With Combustion Chamber. Instantly Attached to any Furnace

Burns any grade of oil, which can be fed by pressure or gravity feed. Operates with fan blast air at 1½ ounces or over.

Produces perfect combustion. lights instantly, and is easily attached. Ideal burner for core ovens, enameling, annealing, forging, melting or other heating furnaces where compressed air is not available or profitable to use.

Low pressure burners are the most economical to operate.

Combustion chambers must be properly lined to get the full benefit of fuel consumed, and we recommend this combustion chamber lined with special fire brick with the Hauck low pressure furnace burner as most satisfactory.



Price—Burner with 2½" or 3" blast gate and combustion chamber all complete \$.....

Price—2½" blower with motor attached for either direct or alternating current with switchboard \$.....

Burner furnished without combustion chamber



HAUCK KEROSENE FURNACES

For Roofers, Contractors, Plumbers, Electricians, Telephone and Telegraph Companies



Kerosene Solder Iron Furnace.

Price \$ *22.-*



Kerosene Melting Furnace.

Price \$ *18.-*



Combination Kerosene Furnace.

This furnace has a combination shield for holding metal pots and soldering irons.

Price \$ *19.-*

Construction

Tank

Is made of steel, tinned inside and outside, all seams and fittings are welded, not soldered; will stand rough usage.

Pump

Is 1" diameter, quick acting, automatic check.

Burner

Furnaces equipped with Hauck Patent Burner, which is bronze, standard threads.

Furnace Shield

Is detachable so that furnace can be used for heating

different sizes of pots, pails and kettles; for melting and heating lead, babbitt, metal, asphalt, liquids, etc.

Soldering irons up to 9 lbs. are heated in less time and at lower cost than with gas, gasoline or charcoal.

Furnaces are well balanced with especially wide tanks.

May be operated with gasoline if preferred.

Small Iron pots of 15 to 50 lbs. capacity furnished when ordered.



HAUCK COMBINATION MELTING FURNACE and Portable Heater

One of the most practical and economical devices for machine shops, water works, junk dealers, printers, etc., is the Combination Lead Melting Furnace and Portable Oil Burner as shown in illustration. It is actually two outfits in one. Can be used as a furnace for melting lead or other soft metals.

Or, the portable burner is instantly detached from furnace and used for a wide variety of heating operations, such as—melting babitt out of bearings, heating bearings for rebabbiting, expanding to make shrink fits, straightening, melting lead out of pipes and fitting joints, pre-heating before welding, brazing, etc.

The Furnace shown in illustration is the smallest size with 125lb. pot, melts 100 lbs. of lead in 14 minutes. Burner consumes 3 pints kerosene oil per hour.

With the larger furnaces 200 lbs. of lead melted in 15 minutes.

450 lbs. of lead melted in 20 minutes.



Cost to keep in molten condition 8 to 10c. an hour.

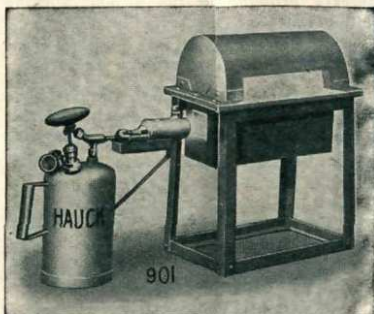
Additional supply of fresh lead melts instantly.

The burner and construction of the tank is similar to those shown on page 5.

No	Capacity of Pot	Capacity of Steel Hand Pump Tank	Oil Consumption per Hour	Length of Oil Hose	Shipping Weight of Outfit	Price Complete
107	125 lbs.	5 gal.	3 pts.	6 ft.	100 lbs.	\$ 6.00
108	200 "	10 "	2 gal.	12 "	210 "	12.00
109	450 "	12 "	2½	12 "	260 "	15.00

Can be furnished with Compressed Air Burners as illustrated on page 6, wherever Compressed Air is available.

HAUCK HEATING FURNACE



For heating soldering irons, tool dressing, annealing and other heat treating operations.

Combustion chamber of furnace is lined with special fire brick and is supplied with a curved iron cover. Charging door is 3" high x 10" long.

The torch shown is the No. 15 size—one gallon capacity as described in detail on page 3.

Hauck suction torch illustrated on page 3 may also be used with this furnace as well as other types of portable burners.

Price of furnace \$ 3.00

Price of torch \$ 2.00

When furnace is not in use, torch need not remain idle, as it can be advantageously used for brazing, expanding, etc.



HAUCK OIL RIVET FORGES

Combine Lightness, Strength and Durability



Fig. 835—No. 3F Forge. Average approx. 3000 $\frac{3}{4}$ " rivets 8 hours. Tank Capacity 20 gallons. Supplied with or without wheels.

Each forge is equipped with the Hauck Patent Burner, having its own combustion chamber. A blue flame is produced before it enters the heating chamber.

Operates with compressed air at any pressure from 10 to 100 lbs. Or, supplied if requested with extra valves in order that the forge may be operated without pressure on the oil tank. This is done by simply closing the air valve leading to the tank and by opening a relief cock on the tank. Burns any grade of fuel, crude or kerosene oil, or distillate.

The air supplied to the burner contains no moisture as it is automatically preheated first. This aids economical combustion.

Full value of heat units obtained through perfect combustion of oil consumed.



Fig. 313
No. 3 Forge. Average approx. 1800 $\frac{3}{4}$ " rivets 8 hours. Tank Capacity 13 gallons.

Burners on these forges light instantly. Temperature easily regulated. Flame does not strike rivets direct.

Both the No. 3 and 3F Forge have perforated fire brick tile tops, where the rivets may be dumped and preheated by the hot waste gases.

This gradual preheating minimizes scaling. The rivets are dropped down into the heating chamber where they are quickly brought to the proper working temperature.

Each forge has a blast pipe in front of charging door to protect operator.

For outside work where the air lines are found to contain considerable quantities of water, we supply the forges with water traps.

No.	Inside Size Chamber			Size of each Entrance		Total Height, Inches	Floor Space Inches	Net Weight Lbs	Oil Consumption per Hour, Gallons	Air Required for Atomizing Cu. Ft. per Minute	Price Complete as Shown Above
	Width, Inches	Length, Inches	Height, Inches	Width, Inches	Height, Inches						
3	12	12	4"	6 $\frac{1}{2}$	3 $\frac{1}{2}$	46	16x16	200	1-1 $\frac{1}{2}$	8-10	\$110.
3F	9	15	9"	8	4	40	26x26	450	1 $\frac{1}{2}$ -2	10-12	125.

Cost of Heating 100 lbs. of Rivets, approximately 10c. (Oil at 8c. per gallon)



BRAZING OF CAST IRON, STEEL, AND OTHER METALS

Broken parts can be brazed quickly, and often more advantageously than by welding.

Some machinery must necessarily be brazed rather than welded, particularly when pieces are machined to fit exactly, and if slightly out of alignment, would prevent their further use.

Parts can be restored to their original form and strength by brazing. The broken pieces should be clamped close together without previous filing (as necessary with welding). Parts must be kept in alignment during brazing operations.

After brazing cast iron, the castings at break are stronger than originally, the spelter increases the tensile strength at joints.

When brazing steel the break should be lapped with sheet iron; or parts overlapped together at break.

Brazing can be successfully done by every mechanic when following instructions and with the use of our Brazing Compound.

Hauck Kerosene Torch No. 14 on page 3, also outfits 7A and 5A on pages 5 and 6, are very suitable for brazing.



Broken Machine Parts Set Up Ready for Brazing

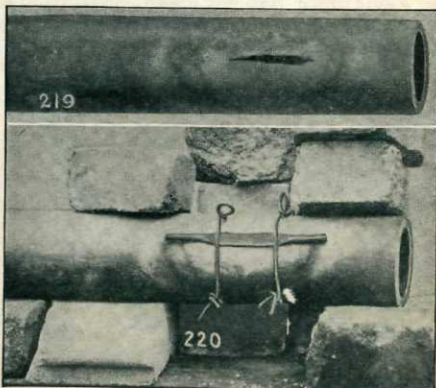
See simple way of holding parts in position.

To braze successfully it is necessary that parts are held tightly together at break, which is done by drilling four $\frac{1}{8}$ " holes about 1" away from crack and drawing hay wire through and twisting ends until parts are joined tight.

Another method of holding parts together and in alignment, is to press broken parts into fire clay, and place brick or weights against the end of castings.

Simple Rules for Successfully Brazing Cast Iron

1. Clean both parts of fracture at least $\frac{1}{4}$ inch from break with steel wire brush, but do not file or disturb line of break. Remove rust and dirt.
2. Place broken parts together as tightly as possible.
3. Set broken piece on 2 bricks, allowing 2 inches on each side of break for flame to circulate.
4. Build fire bricks around piece in oven form, and cover over on top.
5. Apply flame, see that both sides of break are evenly heated to bright cherry red, then draw back flame and allow heat to pickle through to centre of metal—this is most essential.
6. Apply flux over top and bottom of fracture, then apply spelter which should melt instantly. Allow parts brazed to cool naturally, do not remove from bricks until cool.



Simple and Effective Way of Brazing Breaks on Pipes and Tubing

Plate No. 220—Pipe set up ready for brazing. This is done by taking copper or iron wire a trifle longer than break; wire is flattened by hammering and placed over break; hay wire is twisted around to hold flat wire over break. For brazing breaks or heavy pipe, set up on bricks, forming a miniature oven with loose fire bricks to confine the heat. After brazing, wire is twisted off.

HAUCK PREHEATERS FOR WELDING



Reclaiming Defective Pipe Casting

Hauck No. 7 and 8 Double Burner Outfit Preheating for welding a half-ton casting which did not run full at time of pouring.

Preheating in connection with oxy-acetylene welding is one of the principal factors of successful welding; it performs three important functions, viz:

1. Distributes expansion stresses uniformly, throughout the entire part, preventing localized internal strains after the welding is finished.
2. Reduces the time and cost of welding by utilizing a less expensive fuel to bring the casting to a red heat before commencing the actual work with the welding torch (this saving in oxygen and acetylene will alone more than pay for the preheating outfit in a short time).
3. Raises the temperature of the metal around the weld so that the entire efficiency of the welding flame is utilized for welding—the amount of its heat lost by conduction through the metal being reduced to a minimum.

With large machine and engine parts it is often impossible to maintain sufficient metal at a welding temperature by means of the welding flame alone. Preheating is essential on cast iron or high carbon steel to prevent chills or hard spots which prevent machining.

Hauck Burners permit welding to be done on parts in place, where it would be impracticable to dismantle the equipment. The flame can be instantly regulated to concentrate on a small space or spread over a larger area, as required.

A temporary furnace of loose bricks is built around the entire casting, or frequently, in the case of large castings, only around the part to be heated. The Hauck Preheating Burner is placed in position, and the flame directed through an opening in the bricks. By this method an even heat is obtained and the casting kept hot during the entire welding operation. When the welding is finished the burner may be used for reheating welded parts which should cool and allow cooling gradually to equalize contracted strains.

Hauck Preheating Outfits are a necessary part of every up-to-date welding plant. Their use will save time and money, and increase the efficiency of the welding process.

Hauck Preheating Outfits provide a practical economical, ever-ready means of preheating in compact and portable form. They are made in two styles—the Hand Pump and the Compressed Air types. (See sizes on pages 5 and 6).

Consult us about your heating problems. We will tell you about the Hauck Burner made for your individual requirements.

**Hauck Manufacturing Co.,
Makers of Oil Burners, torches, etc., for 20 years.**